

## **IN THE CLAIMS:**

Please amend claim 15 as shown below, in which insertions are indicated by underline and deletions are indicated with strikethrough or by double brackets. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously presented) A metal material comprising a diffusion layer containing a Cu-Zn alloy or a Cu-Mn alloy formed by diffusing at least any one of Cu and Mn in a base material of a Zn alloy,

wherein said Cu or Mn is diffused from a surface to inside of said base material to a depth of not less than 0.5 mm; and

a concentration of said Cu or Mn is gradually decreased from said surface to said inside of said base material.

2. (Previously presented) A metal material comprising a diffusion layer containing a Fe-Cr alloy formed by diffusing Cr in a base material of a Fe alloy, chromium carbonitride being produced on a surface of said base material,

wherein said Cr is diffused from said surface to inside of said base material to a depth of not less than 0.5 mm; and

a concentration of said Cr is gradually decreased from said surface to said inside of said base material.

3. (Previously presented) A metal material comprising a diffusion layer containing a Ti-Al alloy, a Ti-Cr alloy, a Ti-Ni alloy or TiN formed by diffusing at least any one of Al, Cr, Ni and N in a base material of a Ti alloy, a nitride of any one of Al, Cr and Ni being produced on a surface of said base material,

wherein said any one of Al, Cr, Ni and N is diffused from said surface to inside of said base material to a depth of not less than 0.5 mm; and

a concentration of said any one of Al, Cr, Ni and N is gradually decreased from said surface to said inside of said base material.

4. (Previously presented) A metal material comprising a diffusion layer containing a Cu-Ni alloy formed by diffusing Ni in a base material of a Cu alloy,

wherein said Ni is diffused from a surface to inside of said base material to a depth of not less than 0.5 mm; and

a concentration of said Ni is gradually decreased from said surface to said inside of said base material.

5-6. (Canceled)

7. (Previously presented) The metal material according to claim 1, wherein said diffusion layer further contains at least one of iron, nickel, chromium, molybdenum, cobalt, and ceramics.

8. (Previously presented) The metal material according to claim 1, further comprising an Fe alloy layer disposed on a surface of said diffusion layer.

9. (Previously presented) A method of producing a metal material comprising a diffusion layer which is formed by diffusing an element into a base material of a metal and which has a depth from a surface of said base material of not less than 0.5 mm, a concentration of said element being gradually decreased from said surface to inside of said base material, said method comprising:

coating said surface of said base material with a coating agent, said coating agent including a powder of a substance containing said element to be diffused, said coating agent further including a reducing agent for reducing an oxide film formed on said surface of said base

material, and said powder of said substance and said reducing agent being dispersed or dissolved in a solvent; and

diffusing said element into said base material by heating said base material which is coated with said substance.

10. (Canceled)

11. (Previously presented) The method of producing said metal material according to claim 9, wherein said base material comprises a Zn alloy, and wherein a resin of at least one of nitrocellulose, polyvinyl alcohol, polyvinyl, acrylic, melamine, styrene, and phenol is used as said reducing agent.

12. (Previously presented) The method of producing said metal material according to claim 11, wherein said coating agent further contains at least one metal powder of magnesium, aluminum, or manganese, or at least one alloy powder of a magnesium alloy, an aluminum alloy, and a manganese alloy.

13. (Previously presented) The method of producing said metal material according to claim 9, wherein said base material is heated such that a temperature gradient is formed in said diffusing step.

14. (Previously presented) The method of producing said metal material according to claim 9, wherein said diffusing step is carried out in an inert gas atmosphere.

15. (Currently amended) The method of producing said metal material according to claim 9, wherein a Zn alloy is used as said base material, ~~said element to be diffused is at least one of copper and manganese,~~ at least a part of said base material is coated with a first said

powder ~~in said coating step~~ containing at least any one of copper and manganese, and ~~said method includes a second coating step in which then the base material having said powder with at least one of copper and manganese coated thereon is then coated with a second powder containing Fe in prior to said diffusing coating step.~~

16. (Previously presented) The method of producing said metal material according to claim 12, wherein at least one selected from Ni, Sn, and Cu, is further added to said coating agent.

17. (Previously presented) A method of producing a metal material comprising a diffusion layer which contains an Fe-Cr alloy formed by diffusing Cr into a base material of an Fe alloy and which has a depth from a surface of said base material of not less than 0.5 mm, a concentration of said Cr being gradually decreased from said surface to inside of said base material, said method comprising:

coating said surface of said base material with a coating agent, said coating agent including a mixed powder of Cr, Mo, Ni, C and BN, and said powder being dispersed or dissolved in a solvent; and

diffusing said Cr into said base material by heating said base material which is coated with said coating agent in said solvent.

18. (Previously presented) A method of producing a metal material comprising a diffusion layer which contains a Ti-Al alloy, a Ti-Cr alloy, a Ti-Ni alloy or TiN formed by diffusing at least any one of Al, Cr, Ni and N into a base material of a Ti alloy and which has a depth from a surface of said base material of not less than 0.5 mm, a concentration of at least any one of Al, Cr, Ni and N being gradually decreased from said surface to inside of said base material, said method comprising:

coating said surface of said base material with a coating agent, said coating agent including a mixed powder of Al, Cr, Ni, C and BN, and said powder being dispersed or dissolved in a solvent; and

diffusing at least any one of Al, Cr, Ni, C and N into said base material by heating said base material which is coated with said coating agent in said solvent.

19. (Previously presented) A method of producing a metal material comprising a diffusion layer which is formed by diffusing an element into a base material of a metal and which has a depth from a surface of said base material of not less than 0.5 mm, a concentration of said element being gradually decreased from said surface to inside of said base material, said method comprising:

adding at least one of copper and manganese as a seeding agent to a molten metal when casting is performed by using said molten metal of Zn or a Zn alloy.

20. (Previously presented) The method of producing said metal material according to claim 19, wherein said casting is started 10 to 30 seconds after said seeding agent is added to said molten metal.

21. (Currently amended) The method of producing said metal material according to claim 19 or 20, wherein said at least one of copper and manganese is an added powder having a particle size of 10  $\mu\text{m}$  to 50  $\mu\text{m}$ .

22. (Currently amended) The method of producing said metal material according to claim 19, wherein copper is added as the seeding agent, and said copper is seeded in an amount of 1 % by weight to 18 % by weight of an entire amount of said Zn or said Zn alloy.

23. (Currently amended) The method of producing said metal material according to claim 19, wherein manganese is added as the seeding agent, and said manganese is seeded in an amount of 3 % by weight to 30 % by weight of said seeding agent.

## **REMARKS AND DISCUSSION**

Upon entry of the present Amendment-B, claims 1-4, 7-9 and 11-23 remain pending in the application, of which claims 1-4, 9 and 17-19 are each independent. Also, the claims are subjected to a Restriction Requirement under 35 USC 172 and 372.

### **Amendments Presented**

***In the Claims:*** Claim 15, which had been amended in Preliminary Amendment-A, has been amended back to its original form, and to replace the term “diffusing” at the last line of the claim with ---coating--- for consistency.

Applicant respectfully submits that the above amendment is fully supported by the original disclosure, including the drawings, specification and claims. Applicant also respectfully submits that no new matter is introduced into the application by the above amendments because the entire subject matter thereof was expressly or inherently disclosed in the original claims, specification and drawings.

## **RESTRICTION REQUIREMENT**

In the above-identified Office Action, claims 1-4, 7-9 and 11-23 have been placed under a restriction requirement under 35 USC §§121 and 372.

## **SUMMARY OF THE EXAMINER'S POSITION**

Specifically, the Examiner has identified the following inventions or groups of invention, which the Examiner has asserted are not so linked as to form a single inventive concept under PCT Rule 13.1:

- |           |  |
|-----------|--|
| Group I:  | Claims 1 and 7-8, drawn to a Cu-Zn alloy containing diffusion layer;                                 |
| Group II: | Claims 2 and 17, drawn to a Fe-Cr alloy containing diffusion layer and method of production thereof; |